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THE ISOPOD CRUSTACEAN GENUS *MUNNOGONIUM* GEORGE AND STRÖMBERG, 1968 (MUNNIDAE, ASELLOTA)

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The genus *Munnogonium* was established by George and Strömberg (1968) for their new species of Munnidae, *Munnogonium waldronense*, from the San Juan Islands, Washington. The generic name was based on the belief that the new genus was intermediate between *Munna* and *Pleurogonium*, or at least . . . "combines a number of characters of both . . .". The genus actually appears to be closest to *Austrosignum* Hodgson (1910). If the diagnosis of *Austrosignum* by Nordenstam (1933; repeated by Menzies and Barnard, 1959) is compared to that of *Munnogonium* by George and Strömberg (1968), only 3 differences of possible generic value can be found. 1. Coxae visible dorsally on pereonites 2–7 in *Munnogonium*, but only on pereonites 5–7 in *Austrosignum*. 2. Ocular processes slender in *Austrosignum*, short and partly hidden in dorsal view by base of antenna 1 in *Munnogonium*. 3. Mandible with 3-segmented palp in *Austrosignum*, without palp in *Munnogonium*. A brief discussion of these differences follows.

As shown in Figures 1–2, coxae in *Munnogonium* are visible dorsally on pereonites 2–7 in the male and on pereonites 5–7 in the female. In the latter, the anterior pereonites expand laterally in conjunction with development of the marsupium, with the result that the coxae come to lie beneath the pleura where they are not visible in dorsal view. Validity of the first difference seems questionable.

Length and slenderness of the ocular processes vary among the known species of *Austrosignum*, and in *A. falklandicum* Nordenstam (1933) these processes are short and partly covered by the base of antenna 1 as in *Munnogonium*. We doubt the significance of this character.

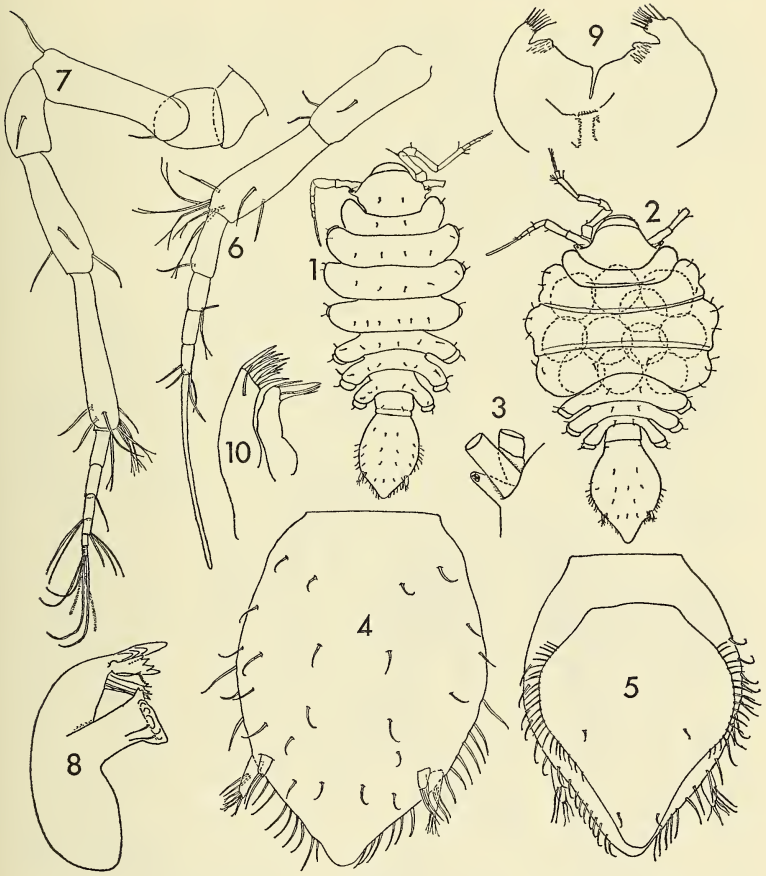
We are left with the presence or absence of a mandibular palp as the only difference between species of *Austrosignum* and *Munnogonium*, and this seems to us to be a character of generic value. Species of *Austrosignum* which lack a mandibular palp and should therefore be transferred to *Munnogonium* are the following: *A. grande* Hodgson, 1910; *A. tillerae* Menzies and Barnard, 1959; *A. globifrons* Menzies, 1962; *A. erratum* Schultz, 1964; and *A. maltinii* Schiecke and Fresi, 1972. Hodgson (1910, p. 72) considered *Austrimunna incisa* Richardson (1908) "most closely allied to" if not identical with his species *A. grande*. In his list of species of *Austrosignum*, Menzies (1962, p. 50) included *A. incisa* (Richardson) and *Paramunna dubia* Hale (1937), but gave no reasons for transferring them to *Austrosignum*. It was not definitely stated in the original descriptions whether either has or does not have a mandibular palp.

George and Strömberg (1968) pointed out the possibility that *Austrosignum tillerae* Menzies and Barnard might be a *Munnogonium*, but because of the brevity of the description and the fact that the type-series was temporarily unavailable to them, they did not make the transfer. We have examined the 5 paratypes of *Austrosignum tillerae* (the holotype could not be found) and find that not only is this species a *Munnogonium*, but it is conspecific with *M. waldronse*. In support of this finding we give below some descriptive notes, based on specimens from Puget Sound (Figs. 1–20) and on paratypes from southern California (Figs. 21–31).

Munnogonium tillerae (Menzies and Barnard)
Figures 1–31

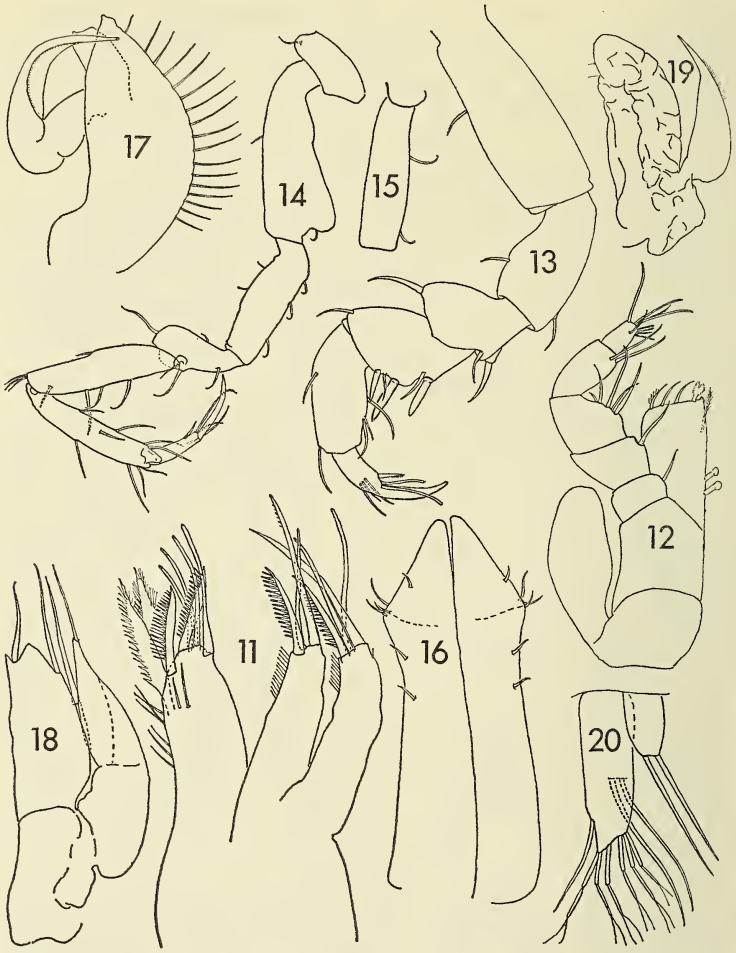
Austrosignum tillerae Menzies and Barnard, 1959, pp. 8–9. fig. 1 A–C.
Munnogonium waldronense George and Strömberg, 1968, pp. 226–230, figs. 1–2.

Material examined: Paratypes of *Austrosignum tillerae* (4♀♀ 1♂), from southern California (Figs. 21–31). More than 50 specimens of



Figs. 1–10. *Munnogonium tillerae*. 1, Male, dorsal (1.45 mm). 2, Female, dorsal (1.42 mm). 3, Eye and bases of antennae 1 and 2, dorsal. 4, Male telson, dorsal. 5, Female (1.2 mm) operculum and telson, ventral. 6, Left male antenna 1, dorsal. 7, Left male antenna 2, dorsal. 8, Left mandible, male. 9, Labium, mandibular surface. 10, Maxilla 1, male.

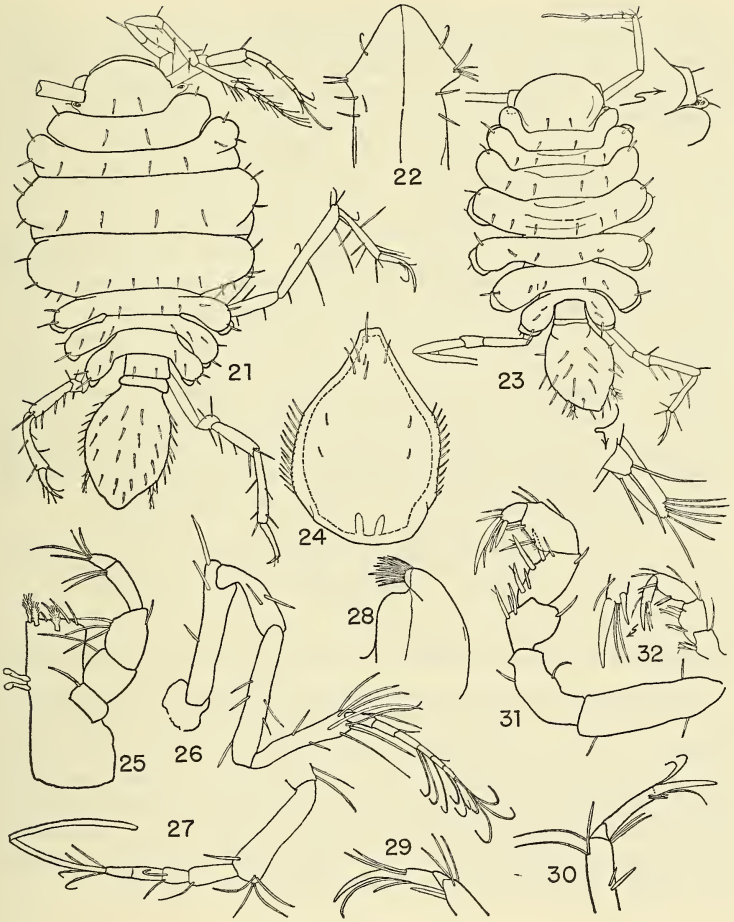
M. tillerae collected by William Shapeero in Puget Sound, about 1350 m NW of West Point, Seattle, Washington, November 1965 (Figs. 1–20). Depth about 6 m; bottom of fine to muddy sand with many seapens (*Leioptilus quadrangularis*) present. Ten specimens (5♂♂, 5♀♀) from a sandy mud bottom at about 6 m depth in Shilshole Bay, off Seattle, Washington, collected in the summer of 1970



Figs. 11–20. *Munnogonium tillerae*. 11, Maxilla 2, male. 12, Maxilliped, male. 13, Pereopod 1, male. 14, Pereopod 2, male. 15, Pereopod 2, female, basis. 16–19, Pleopods 1–4, male. 20, Right uropod, dorsal.

by William Shapeero. The longest male was 1.3 mm and longest female 1.6 mm long.

Supplemental description of specimens from Puget Sound: Length of *A. tillerae* paratypes, ♀ 1.0–1.5 mm, ♂ 1.2 mm; Puget Sound specimens 0.8–1.8 mm. Ocular processes longer and more slender



Figs. 21–32. *Munnogonium tillerae.* 21, Female paratype (1.5 mm). 22, Pleopod 1, male. 23, Paratype male (1.2 mm). 24, Female operculate pleopod. 25, Maxilliped. 26, Antenna 2. 27, Antenna 1. 28, Labium. 29, Dactylus pereopod 7, male. 30, Dactylus pereopod 2, male. 31, Pereopod 1, male. 32, *Munnogonium erratum.* Pereopod 1, holotype, male.

then shown by Menzies and Barnard, partly to almost completely concealed in dorsal view by proximal segments of antenna 1. Pereonites 5–7, lateral expansions separated by distinct gaps except in holotype ♀ of *A. tillerae.* Coxae visible in dorsal view on pereonites 2–7, except

in some ovigerous ♀♀ in which they are not visible in pereonites 2–4. Dorsal surface of pereon with scattered setae (not shown by previous authors). Antenna 1 with 4-segmented flagellum (3-segmented in holotype of *A. tillerae*). Antenna 2 with 6-segmented flagellum (5-segmented in holotype of *A. tillerae*). Incisor of mandible with 4 teeth (3 teeth in allotype of *M. waldronense*). Lower lip with distal setose lobe on either side, separated by notch from small blunt lobe covered with fine setules. Other mouthparts agree with those described by George and Strömberg, with slight differences in numbers of setae. Pereopod 2 sexually dimorphic; posterior margin of basis produced into flange ending distally in rounded lobe in male; flange absent in female. Female operculum with scattered setae on ventral surface and row of setae on convex proximal part of each lateral margin. Male pleopods 2–4, not previously illustrated, as in Figures 17–19. Endopod of pleopod 3, 1.5 times as wide as exopod; apex with seta inserted in notch; lateral margin with 2 setae on distal half. Exopod of pleopod 3 narrowly pyriform, with terminal seta. Endopod of pleopod 4 much wrinkled; exopod with convex lateral margin, concave medial margin, and slender pointed apex.

Munnogonium erratum (Schultz)
Figure 32

Austrosignum erratum Schultz, 1964, pp. 307–310, figs. 1–11.
Munnogonium erratum (Schultz).—George and Strömberg, 1968, p. 230.

The holotype, thus far the only specimen discovered, was reexamined, and found to be a *Munnogonium*, distinct from the other Pacific coast species, *M. tillerae*. The most obvious difference is the much greater separation of the lateral parts of the pereonites in *M. erratum*, especially those of pereonites 4–7. The absence of a mandibular palp is confirmed. Antenna 1 is broken at the fourth flagellar segment, giving this segment the flattened appearance shown by Schultz (1964, fig. 8). Pereopod 1 resembles that of *M. tillerae* (compare figs. 31 and 32).

Acknowledgements

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